

CENTRE CIRCULAR

NEWS FROM THE FOOD PROCESSING DEVELOPMENT DIVISION



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FOCUS ON The Sensory Evaluation Program of the Food Processing Development Division

Written by: S. Perrin & J. Janz

"Where do you work?", is a frequent question when people meet. For the scientists and technologists who work in the Sensory Evaluation Program, their answer often brings looks of surprise, and the envious response, "You mean you get to try new foods before they are on the market?"

"Everyone eats, and most people are intrigued by new food products that are continually being presented in the marketplace", says Sandra Perrin, one of the scientists in the program. "The Sensory Evaluation Program is the place where these products meet the people."

In the highly aggressive marketplace where 80 - 90% of all new food products fail, sensory evaluation is a critical tool to help the food industry manage risk. With both a Consumer Product Testing Centre (CPTC) in downtown Edmonton and an Analytical Sensory Laboratory at the Food Processing Development Centre (FPDC) in Leduc, the Sensory Evaluation Program is equipped to evaluate products at all stages of development. "Our business focus is to help industry with new product and process development. An important part of this is measuring consumer response to product prototypes or new processes, and of course, competitive comparisons," says Karen Erin, Programs Branch Head.

"Our clients sometimes get confused by the difference between 'consumer testing' and 'analytical testing', says Dr. Jennifer Janz, another scientist with the Sensory Evaluation Program. She explains that both types of testing are used to guide new products through the development stage. Analytical sensory evaluation serves to define product differences by measuring the presence and intensity of specific product attributes (How springy is the cheesecake? How chewy is the roast? How sweet are the cookies?) that are often coordinated with instrumental laboratory readings to examine the relationships between physical measures and sensory characteristics. Such information can then be used to help in developing a manufacturing process and optimizing product formulation.

Consumer testing gives a picture of the

acceptability of a product, and can help identify what is driving that acceptance, or areas where the product needs some improvement. How do consumers respond to the appearance, the flavour, the texture? Each consumer evaluation requires the participation of at least 75 panellists and the Sensory Program has a database of participants that can match almost any desired demographic profile.

In fact, analytical and consumer tests are both a part of the research that needs to be done before a product is launched. While AAFRD has market specialists that can assist clients in determining if there is a place for a new idea in the marketplace, and what kinds of costs will be acceptable, the sensory evaluation of a product is an often-overlooked contributor to these decisions. "A good marketing strategy will ensure consumers purchase your product once. If your product is good enough, you've just made a repeat customer. That's where sensory evaluation fits in.", says Perrin.

The range of test methods available in the Sensory Evaluation Program is substantial. Both the FPDC and the CPTC are carefully designed spaces with the equipment to handle most types of food products, as well as non-food items. They are also equipped with individual panel booths for product testing under controlled conditions and to ensure panellist privacy. To further reduce the risk of introducing bias during testing, lighting can be adjusted to mask product colour differences and air circulation is controlled to minimize the entry of cooking smells into the test area. A computerized interface is used for questionnaire presentation in each booth, and for data collection and analysis. A network connects all booths at both locations to facilitate simultaneous testing and to offer rapid feedback during panellist training sessions. If evaluation under "real-life" conditions is the objective, Home Use testing can be arranged with participants collecting the products for use as part of their regular daily activities.

If "where you work" is a place that would benefit from knowing the sensory characteristics of a new or changing product, the Sensory Evaluation Program has a wide variety of methods to help you

obtain that knowledge.

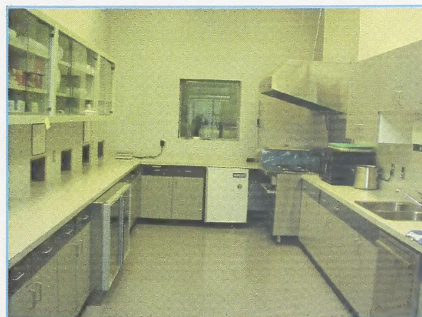
For further information on how sensory evaluation can assist with your product development goals, or to add your name to our panellist database, feel free to contact the Sensory Team at:

Jennifer Janz: (780) 980-4873

jennifer.a.janz@gov.ab.ca Or

Sandra Perrin: (780) 415-6268

sandra.perrin@gov.ab.ca



Center Circular Technologists - Getting the Gist of Technology

Written by: J. Moyes

Gist n: 1 the central meaning of; 2 the choicest or most essential or most vital part of some idea or experience.

A vital part of a client's experience at FPDC is working alongside one of our six enthusiastic, knowledgeable and affable technologists.

Henri Vincent has been with the Centre for 12 years after spending his earlier career working at palm Dairies and Gainers. Henri works mostly with clients on meat projects and enjoys early morning starts.

Bob Myers has also been at FPDC 12 years and spent his earlier career with Palm Dairies and Gainers. Bob enjoys the energy and enthusiasm of the clients and the diverse nature of the projects and processes that can be performed at the Centre.

Alden Worobec joined FPDC staff 5 yrs ago after several years with Herimex. Alden enjoys the diversity of the clients and their projects and the challenge of adapting a process to be efficient and effective for the capacity the client wishes to produce.

Marius Lordache started with FPDC 4 years ago

working on projects for the Canola Council of Canada.. Prior to that he worked with Pasta Mill for a year with their QC department. Marius has a Masters degree in Food Science from the U of A. as well as a BA in food science from Romania. Marius enjoys "The diversity of the job; Having the opportunity to work with a great team in a variety of projects, knowing that my work provides technological assistance to the food processing industry. The satisfaction that I contributed to new product reaching the market and new processing technologies adopted by the industry. It's rewarding to work as a team and solve problems or improve the way we operate."

What I find challenging here is. ..."Interpreting the theory and applying it to different situations; Sometimes is not easy to find the right answer when developing a new product, when scaling-up processing procedures that incorporate new technologies, adapting equipment, materials and supplies for the successful completion of projects. It is not always easy but it is fun. Each day is different from previous and challenges are changing with the demand from society. Ongoing maintenance of the Health and Safety program."

Mike Markle came to FPDC 14 months ago for Alberta Research Council. Mike spent 14 years with the ARC and prior to that worked at Palm Dairies. Mike has a BA education from U of A. Mike likes the meaningful work he gets to do at the Centre helping clients produce a finished product ready for the market.

Paul Grey the most recent addition to the team started last November after 19 years with the Alberta Research Council. Paul has a degree in Biology for the U of A. Paul has enjoyed learning about all the equipment at the Centre and thinks the FPDC staff are great people to work with. Paul finds all the new food procedures a challenge but is enjoying the role reversal with Mike whom Paul trained at ARC.

Marie Corriveau keeps tabs on all the comings and goings at the center. Looking after; shipping & receiving, plant cleaning requirements and replenishing supplies all over the plant. Marie also helps out in the lab with fatty acid testing. Marie started at the Center 5 years ago working for clients like Select and Cari-Bay. Marie likes working with the FPDC staff and how the Directors stand behind the staff. Her job challenge at FPDC is keeping up with all the changes.

Upcoming Events

Milk Pasteurization & Process Operation Licensing Course

May 9, 10, 11 & 12, 2006

Classes will be held at the Agrifood Business Centre 6547 Sparrow Dr., Leduc
"Hands on Training" will be held at:
Food Processing Development Centre
6309 - 45 Street, Leduc, Alberta

Jacqueline Martin-Lopez: Alberta Agriculture
Ph: (780) 980-4867 Fx: (780) 986-5138
Email: jacqueline.martin.lopez@gov.ab.ca
Debbie Hofstra: Alberta Dairy Council
Ph: (780) 387-3559 Fx: (780) 387-3535
Email: hofstra@ralcomm.net

COURSE TOPICS

- HACCP - Microbiology of Milk
- Product Recalls - Provincial Regulations
- On the Line Sanitation Awareness - Cleaning Basics
- Cleaning HTST Systems
- HTST Pasteurization Equipment
- Separators, Clarifiers and Homogenizers: Design, Function and Operation
- Standardization - Vat Pasteurization
- Indicating Thermometers - Basic HTST
- Regeneration - Recorder Controllers
- Flow Diversion Valves
- Booster Pump, Monitor (Large Systems)
- Mag Flow Meters
- Flow Diagrams, Cross Connections

WHY ATTEND This course gives participants an overview of the concepts of pasteurization, equipment, fail safe devices, regulatory application, design and function as related to time, temperature and pressure. The four day program includes hands-on activities, discussions and lectures on regulations, cleaning and sanitation, pasteurization, and other operational procedures in milk plants. One day will be spent in the pilot plant at the Food Processing Development Centre using the HTST system available to see what occurs and learn why...

The course is designed primarily for individuals in quality control, management, plant superintendents, operators, plant engineers, dairy consultants and individuals overseeing regulatory mandates. Attendees should be employed in a facility that has a working pasteurization system and / or be familiar with the names of basic system components, and their function(s). You will receive a printed manual one week before the commencement of the course, so you can study the material and become familiar with the concepts that will be presented.

Materials: Course manuals will be provided to each applicant a week in advance if registered by the deadline. Participants will require pens, pencils, three hole punched paper & calculator.

Meals: Milk breaks will be provided. All meals are "on your own". Particulars will be mentioned at the course.

\$400 for HTST Course

\$250 for Vat Pasteurization Course

Make cheques payable to: Alberta Dairy Council

And mail all cheques with registration form to:

Alberta Dairy Council

Box 3452, Leduc, AB T9E 6M2

Registration Deadline: April 13, 2006

For more information, please contact:

Did You Know?

Get Involved - Get Informed!!

Did you know that Health Canada is currently revising the Canada Food Guide? They are looking for public input into the new format. Simply log into www.hcsc.gc.ca and click on the link to "Online Consultation on Canada's Food Guide Revision."

The online survey gives you the chance to give your opinion on an educational tool that has the potential to influence Canadians as they make their food choices at home and in the grocery store. In addition, you may learn a few things about your own nutrient needs!

Technical Field Trip - Convenience Food Systems Technology Centre

Written by: K. Bunnin

In January four staff members (Kathleen Bunnin, Marius Iordache, Arie Vandermeer, Alden Worobec) from the Food Processing Development Centre (FPDC) in Leduc travelled to Bakel, Netherlands for technical training at the Convenience Food Systems (CFS) Training Centre. The main objective of this four-day training session was to learn more about the operation and applications of the CFS Flow-Cook Oven that is at the FPDC. The second objective was to learn about the production of home meal replacement products.

The first two days of our visit was spent in the training centre of the CFS facility. Several products had been pre-selected for evaluations such as: various chicken parts, strip loin steaks, pork ribs, beef burgers and frozen bakery products. Each of these products was run through either the Flowcook two zone linear oven or the Cookstar two zone spiral oven. For each of the tests we changed parameters such as oven temperature, dew point, fan speed and damper position allowing us to evaluate how each of the parameters affected the final product.

On the third day we spent the morning in a theoretical session with a CFS sales manager. He was able to illustrate to us why all of the changes that we had made in the previous two days affected the product the way they did. In the afternoon we went for a visit to a wholesale store called HANOS in the nearby city of Venlo. It sold bulk-sized products for restaurant and food service establishments. There were a variety of HMR products including cheese, pasta, sauces, rice, sushi, meat products and sweet goods. It was similar in format to a warehouse store (i.e. COSTCO) in North America.

On the final day we had the opportunity to visit Dalco Foods BV, a food manufacturer that manufactures private label value added food products. Most of their processing equipment is from CFS. Three manufacturing lines are available for production, they all involve marinating, forming & coating, frying & cooking and freezing. Dalco utilizes both a FlowCook oven and a CookStar oven from CFS. They manufacture products such as chicken wings, breaded formed meat (i.e. Schnitzel), meatballs and tray meals. The tour was an excellent way to wrap up the visit because we were able to see the CFS equipment operating at full capacity.

We would like to thank all of the staff at CFS for all of their hard work and outstanding hospitality that made our visit an excellent one.



Missing from photo: Alden Worobec

There were a total of ten speakers from as far as the University of Braunschweig, Germany and as close as Edmonton and Leduc. The 45 participants rated the seminar as very good to excellent and the effectiveness of the speakers as very good.

The AVAC sponsored evening social gathering with wine and hors d'oeuvres was appreciated and enjoyed by all. Most of the speakers and a majority of the participants had flown in for the event.

The sponsors for the event were Alberta Natural Health Agriculture Network, Agriculture & Food Council, Agriculture and Agri-Food Canada and AVAC. The event was organized by the Food Processing Development Division with assistance from the Business and Innovation Branch and Bio-Industrial Technologies Division.



(From left to right) The Centre's Karen Erin, Dr. Jimmy Yao and Dr. Kevin Swallow, Dr. Leigh Gao, PEI Food Technology Centre and Dr. Peter Winterhalter, Technical University of Braunschweig, Germany.



The Centre's Marek Gierus presenting his work on vacuum frying.



Myth Busting

MSG Facts and Fiction

Written by: Lorea Ladner

The use of monosodium glutamate has become controversial in the past 30 years because of reports of adverse reactions in people who have eaten foods that contain MSG.

Fiction:

- According to the mythology, MSG is responsible for over 30 different conditions or diseases ranging from sleep disorders to Alzheimer's to partial paralysis.
- It is responsible for the weight gain of the population.
- Manufacturers are using MSG to mask the quality and flavor of inferior ingredients.
- Statements made include "toxic", "it has a drug-like effect", and "it tricks your brain".

Facts:

Glutamate is a common amino acid found in virtually all protein containing foods such as meat, fish, milk and many vegetables. Tomatoes, grapes, cheese and mushrooms contain high levels of naturally occurring free glutamates and are used for their flavorful qualities. Glutamate is produced for use as a food ingredient by fermentation of naturally occurring food substances as molasses, sugar beets or tapioca starch.

Glutamate is an essential link in human metabolism and the human body produces and contains about two kilograms of glutamate in organs and tissues. The average person consumes about 10 grams of bound and one gram of free glutamate from daily meals. The human body creates about 50 grams of free glutamate daily. In contrast the added intake of glutamate through MSG amounts to a mere 0.5 - 1.5 grams per day.

Monosodium Glutamate (MSG) is the sodium salt of glutamate. It is used as a flavor enhancer in savory foods. Because seasonings are added to foods in such small quantities, Health Canada considers them to be nutritionally insignificant. MSG provides no calories and therefore does not contribute directly to weight gain.

Studies have shown that the body uses glutamate as a nerve impulse transmitter in the brain. This led to concerns about abnormal function of the glutamate receptors leading to neurological diseases, and compounding the fears were extreme studies where injections of glutamate in laboratory animals resulted in damage of nerve cells in the brain.

In 1992 the FDA contracted the Federation of

American Society for Experimental Biology (FASEB) an independent body of scientists to review the available scientific data. The 1995 report helps put the safety concerns into perspective and reaffirmed the belief that MSG and related substances are safe for most people when eaten at customary levels.

The following are some of the reports key findings:

- An unknown percentage of the population may react to MSG and develop symptom complex characterized by tingling, burning or numbing sensations, facial pressure, rapid heartbeat, chest pain, headaches, nausea, drowsiness and weakness.
- In otherwise healthy MSG-intolerant people, the MSG symptom complex tends to occur within 1 hour after eating 3 g or more of MSG on an empty stomach or without other food. A typical serving of glutamate-treated food contains less than 0.5 g of MSG. A reaction is most likely if the MSG is eaten in a large quantity or in a liquid, such as a clear soup.
- Severe, poorly controlled asthma may be a predisposing medical condition for MSG symptom complex.
- No evidence exists to suggest that dietary MSG or glutamate contributes to Alzheimer's disease, Huntington's chorea, amyotrophic lateral sclerosis, AIDS dementia complex, or any other long-term or chronic diseases.
- There is no scientific evidence that the levels of glutamate in hydrolyzed proteins cause adverse effects or that other manufactured glutamate has effects different from glutamate normally found in foods.

In Canada nutritional claims such as "no MSG" or "No MSG added" are considered misleading if the other sources of free glutamates are present including hydrolyzed vegetable protein, soya sauce and autolysed yeast extracts or common ingredients used in, for example, a tomato based pasta sauce.

Internationally the Joint Expert Committee's, a scientific advisory board for the Food and Agriculture Organization and the World Health Organization, safety review, placed MSG on the most favorable category for food additives, having no requirement for a specified "Acceptable Daily Intake". It is approved for use in the US, Europe, Japan, and other Asian countries, South America, Africa and Australia.

Health Canada, The Glutamate Information Centre, Washington DC and the U. S. Food and Drug Administration, FDA Medical Bulletin, January 1996, Volume 26, Number 1.

NEW TO THE DIVISION

Jennifer Janz

Dr. Janz is the most recent addition to the Sensory Evaluation Program, having joined the Food Processing Development Centre staff in November after returning from a stint in New Zealand as a Postdoctoral Fellow at Massey University.

Jennifer earned a BSc in Animal Science from the University of Manitoba before moving into an MSc program in Meat Science at the University of Alberta. Working jointly between the U of A and the Agriculture and Agri-Food Canada Lacombe Research Centre, and with funding from Alberta industry partners, Jen conducted research on bison meat quality and shelf-life, studying the impact of a variety of postmortem carcass treatments designed to enhance tenderness and eating quality. With continued collaboration between the U of A and AAFC, Jen undertook Natural Sciences and Engineering Research Council (NSERC) - sponsored doctoral research in the area of muscle profiling and tenderness mapping while also completing the Applied Sensory Science and Consumer Testing Certificate Program from the University of California, Davis, stimulating an interest in multivariate statistical techniques for analysis of sensory data. The primary focus of Jen's postdoctoral work in New Zealand was the manipulation of fatty acid profile, nutrient content, and eating quality of pork (yes, pork not lamb!) through a series of dietary interventions.

Jen is looking forward to ongoing training in the area of flavour and texture profiling and to assisting you with designing sensory evaluation protocols to meet your product development and testing objectives.

Contact Jen by phone at: (780) 980-4873 or by email: jennifer.a.janz@gov.ab.ca

